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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/555,910

11/07/2005

Daniela Tomova

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WOOD, PHILLIPS, KATZ, CLARK & MORTIMER

500 W. MADISON STREET

SUITE 3800

CHICAGO, IL 60661

EXAMINER

WYROZEBSKI LEE, KATARZYNA I

ART UNIT

PAPER NUMBER

1796

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DELIVERY MODE

07/31/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/555,910	Applicant(s) TOMOVA ET AL.	
	Examiner Katarzyna Wyrozebski	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Oath/Declaration

It was not executed in accordance with either 37 CFR 1.66 or 1.68.
Specifically, the declaration does not contain the application serial number, any reference to the PCT application or the date it was filed. More importantly the declaration is not signed.

Specification

The substitute specification submitted to the European office as well as new page 23 fail to show changes submitted by the applicants. The specification, especially page 23 will not be entered until applicants provide specific indication as to what exactly was changed.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 11-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant

Art Unit: 1796

art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Specifically, applicants have incorporated into new claims limitation of polyolefin copolymers, especially copolymers of ethylene with unsaturated carboxylic acid, up to 1.9 wt %.

First, it is not weather the amounts refer to the amount of the carboxylate groups, or the total amount of modified polymer.

Second, the applicants have no support for the term "up to 1.9 wt %". Applicant's specification provides support for 0.1-1.9 wt % and 1-1.9 wt % on pages 14 and 15 of the specification. Term "up to" encompasses amounts lower than 0.1 as well as complete absence of such modified polymer.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim

Art Unit: 1796

indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 12 recites the broad recitation “2.2-4.0”, and the claim also recites “2.4-3.5” which is the narrower statement of the range/limitation.

Additional claims containing narrow within broad limitation and also hereby rejected under 112 2nd paragraph are claims 13-18.

Use Claims

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 24 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 24 provide for the use of nanocomposite, but, since the claims do not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Additionally, 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Thus, claim 24 is also rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

In order to overcome this rejection, it is advised that the applicant change the “use for” language in claims 1-8 to “process of using”.

Claim Objections

5. Claim 24 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim depends on claims 11-18 as well as 19-23. See MPEP § 608.01(n). To further advance prosecution of the application, the examiner will treat claim 24 as dependent on claim 1 only.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-24 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by FLAT (2004/0225066).

The prior art of FLAT discloses composition comprising nanoclays with polyolefin and polyamide, wherein polyamide is the matrix resin.

Polyamide – according to FLAT can be single polyamide such as PA-6 (examples) or polyamide copolymer as listed [0046]. The viscosity of PA-6 in 1% of sulfuric acid is in a range of 1.5-6 [0031].

Polyolefin – according to FLAT is a mixture of non-functionalized polyolefin and functionalized polyolefin.

Unfunctionalized polyolefin are preferably polyethylene and polypropylene homopolymers, although other variants of the two are also enabled [0049-0050].

Functionalized polyolefins are preferably grafted polyethylene and polypropylene polymers, wherein grafting group comprises a polar functionality. Example is maleic anhydride,

Art Unit: 1796

epoxy and acrylate group. Copolymers of olefin with functional monomers are also enables and such include ethylene-vinyl acetate or copolymers of ethylene with acrylic monomers [0054-0061].

Clay component of FLAT is smectite type clay capable of intercalation and eventual exfoliation. Examples of clays include montmorillonite, bentonite, hectorite, mica and the like [0132] having cation exchange capacity of 50-200 [0133].

Intercalant – the clay of FLAT is intercalated with ammonium component, which achieves increase in basal spacing between clay platelets *via* cation exchange.

Amounts – as guided by the teachings and examples of FLAT: polyamide ranges 60-70 wt % [0084]; 30-95 wt % [0119]. Weight ratio of functionalized polyolefin to unfunctionalized polyolefin is in a range of 5:35 to 15:25, wherein the amount of polyolefin in total is in a range of 10-15 pbw [0076]; Based on the provided ratio the amount of the functionalized polymer can be as low as 1.25 pbw, which falls within applicant's claimed range. According to claims, the amount of clay is in a range of 0.1-50 pbw and the additives are listed in [0135]. Additives include fillers and stabilizers.

Viscosity – the applicants in their claims disclose limitation for solution viscosity for both polyolefin and polyamide. The viscosity disclosed in FLAT is in different units than the viscosity of instant invention, therefore there is no good comparison of the data (one based on volume and the other based on mass) however, judging by the processing or compounding temperatures of FLAT (230-250°C for PA) as well as those of the instant invention (220-260°C), properties of these polymers have to be within the same range for the following reason: Melt

Art Unit: 1796

temperatures depend on make up of the polymers (the same monomers) as well as the molecular weight of the polymer (the same range). They have to overlap.

Process – according to FLAT, the composition can be formed utilizing different methods [0142]. One, The components (PA, PO and nanofillers) can be mixed together at the same time, which would be one step compounding. Two, nanofiller can be added to already blended PA and PO. Three, the nanofiller can be compounded with PA and then mixed with PO and lastly nanofiller can be mixed with polyolefin then incorporated into PA. All possible combinations are taught and otherwise envisaged by the teachings of FLAT. All steps utilize extrusion and melt-processing above melting point of the polymers.

In the light of the above disclosure, the prior art of FLAT anticipates claims rejected above.

8. Claims 1-24 are rejected under 35 U.S.C. 102(e) as being anticipated by FLAT (US 7,029,735).

This disclosure is the same as that of the US 2004/0225066. See comments from paragraph 7 of this office action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katarzyna Wyrozebski whose telephone number is (571) 272-1127. The examiner can normally be reached on Mon-Thurs 8:30 AM-2:30 PM.

Art Unit: 1796

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Katarzyna Wyrozebski/
Primary Examiner, Art Unit 1796
July 29, 2008